

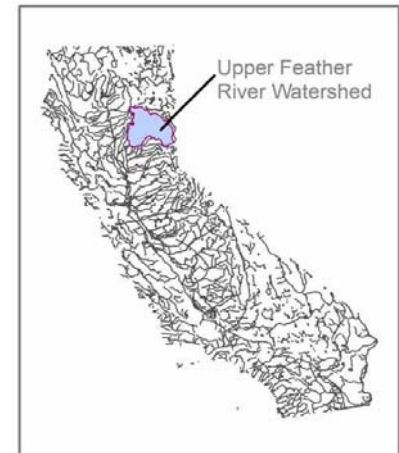
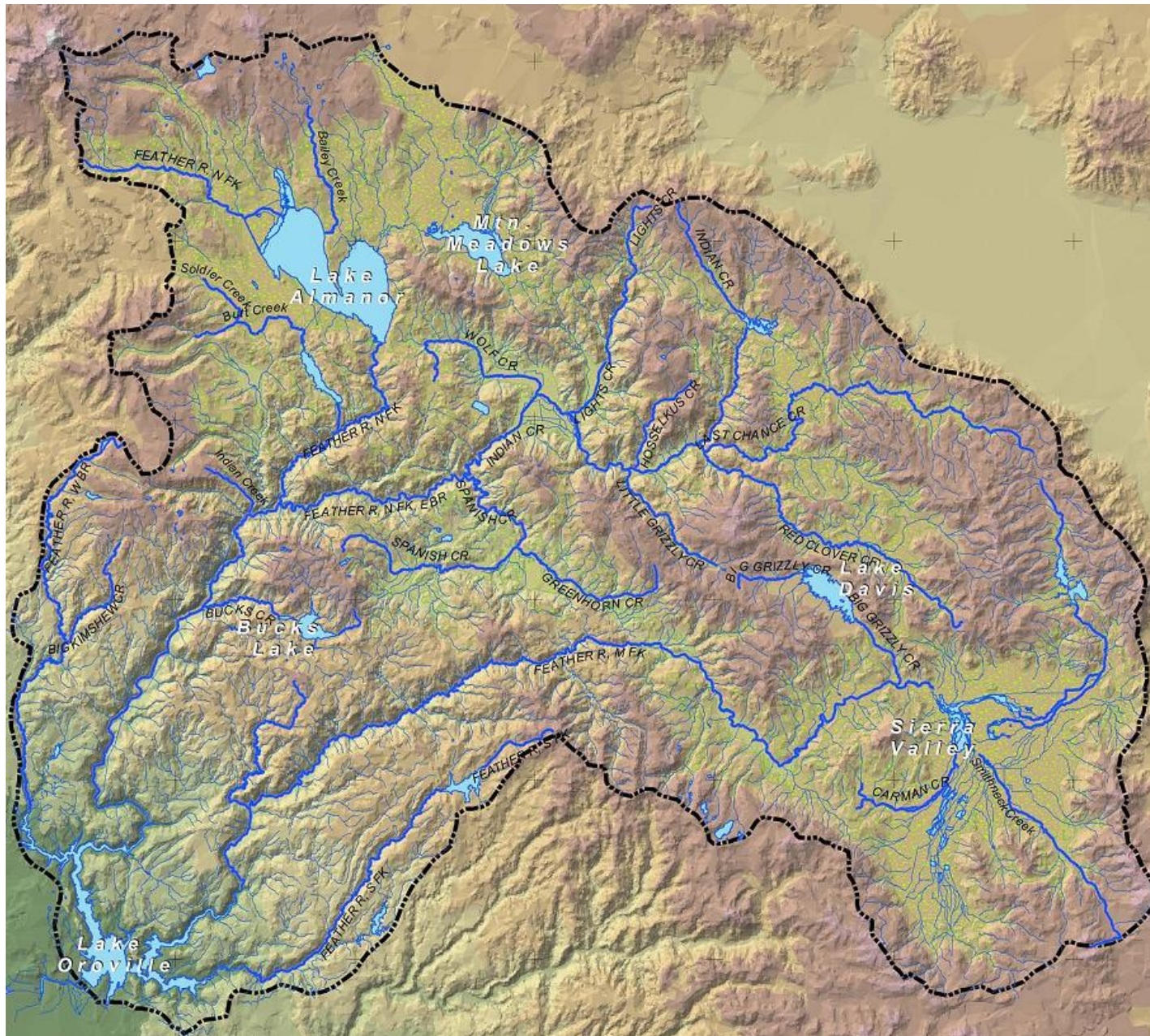
**Department of Water Resources
California Water Plan Advisory Committee
December 9, 2005**



Upper Feather River Integrated Regional Water Management Plan

**County of Plumas
Plumas National Forest
Sierra Valley Groundwater Management District
Plumas County Flood Control & Water Conservation District**

Upper Feather River Watershed



Integrated Regional
Water Management Plan



The Four Components of Integration

- 
- ❖ **Institutional Integration**
 - ❖ **Resource Integration**
 - ❖ **Watershed Integration**
 - ❖ **Analysis and Data Integration**

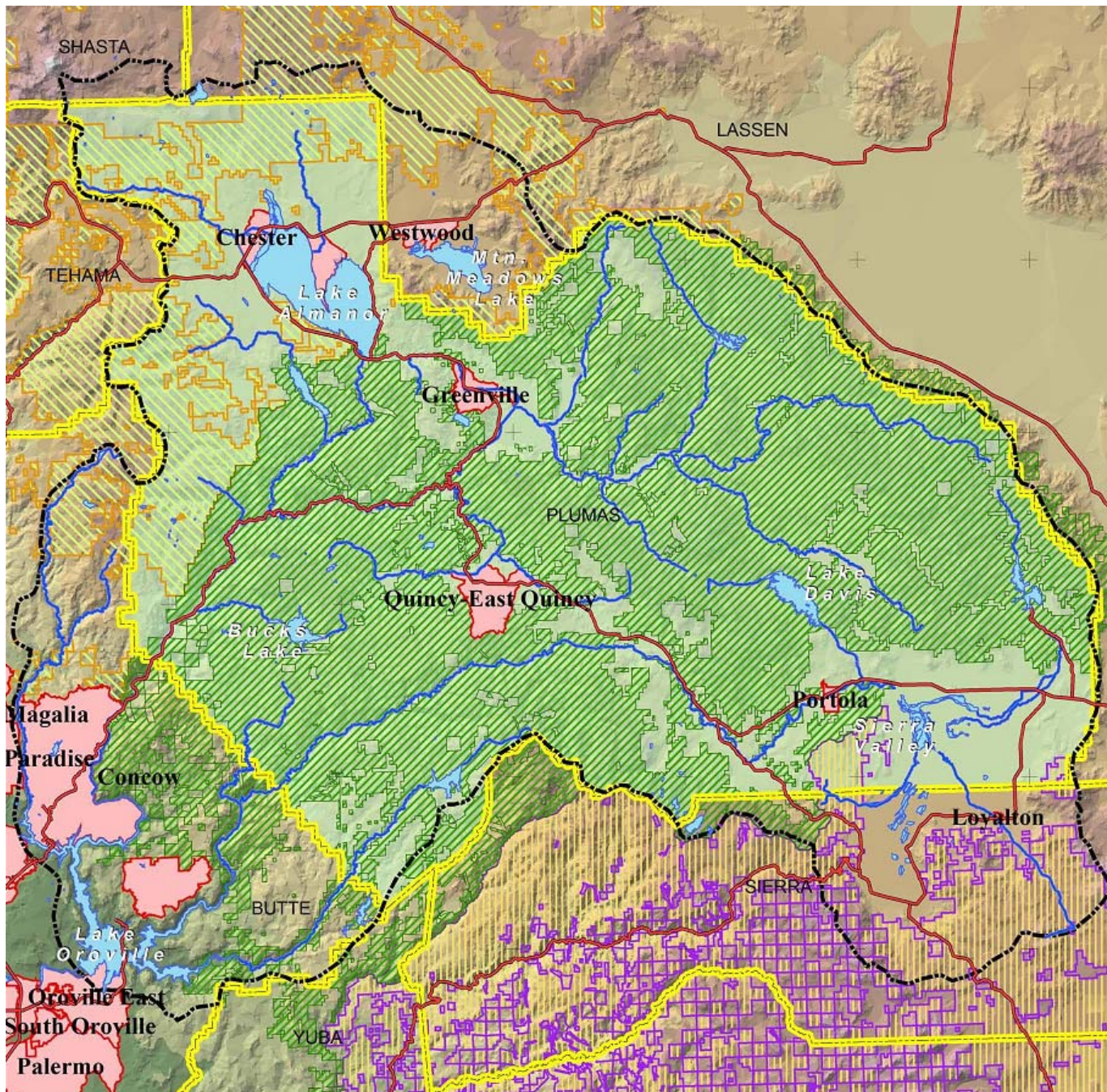
Regional Integration



Integrated Regional
Water Management Plan



Political and Urban Boundaries



Legend

- Lakes and Reservoirs
- Rivers
- Watershed Boundary
- Plumas County
- Highways
- Urban
- Plumas Nat. Forest
- Lassen Nat. Forest
- Tahoe Nat. Forest
- County Boundary

Integrated Regional
Water Management Plan



IRWM Participants



Partners

County of Plumas

Plumas National Forest

Sierra Valley Groundwater Management District

Plumas County Flood Control & Water Conservation District

Cooperating Entities

Sierra County - Butte County - Quincy Community Services District

Indian Valley Community Services District - Maidu Cultural & Development Group

Feather River CRM - Feather River Land Trust - Sierra Institute - Other Tribal Entities

**Integrated Regional
Water Management Plan**



IRWM Participants

Feather River CRM

(1985)

Plumas County
Plumas National Forest
California Department of Forestry and Fire Protection
California Department of Fish and Game
California Department of Water Resources
Central Valley Regional Water Quality Control Board
Feather River College
North Cal-Neva Resources Conservation and Development
District
Plumas Unified School District
Natural Resources Conservation Service
U.S. Army Corp of Engineers
U.S. Fish and Wildlife Service
California Department of Transportation
California Department of Parks and Recreation
Plumas County Community Development Commission
U.C. Cooperative Extension
Feather River Resource Conservation
Salmonid Restoration Federation
Plumas Corporation
USDA Farm Services Agency
Trout Unlimited

Plumas Watershed Forum

(2003)

Plumas County Flood Control District
California Department of Water Resources
State Water Project Contractors

Technical Advisory Committee

Plumas National Forest
Sierra Valley Groundwater Management District
Sierra Valley Resource Conservation District
Sierra County
Feather River CRM
U.C. Cooperative Extension
California Department of Fish and Game
Feather River Resource Conservation District
Maidu Cultural & Development Group
Central Valley Regional Water Quality Control Board
Natural Resources Conservation Service



**Integrated Regional
Water Management Plan**



IRWM Goals and Objectives	FERC #1962 (page, Appendix: Section numbers)	FERC #2105 (page, Appendix: Section numbers)	Monterey Settlement Agreement (page number)	Feather River Watershed Management Strategy (page numbers)	FRCRM Plan (Appendix: page number)	Plumas NF- LRMP (page numbers)	SV Groundwater Management (Bill: Article numbers)
Improve Local Water Retention	■	■	19 ●	19 ●	1 ●	4-7 ●	1391.6,7 ●
Reduce Flood Potential	A.2 ●	A.3 ●	▲	▲	▲	■	■
Improve Water Quality (temperature and sediment)	5 A.1,4 ●	6 A.5 ●	19 ●	21 ●	A.3 ●	4-7 ●	■
Improve Water Quality to Meet TMDL Limits	■	■	19 ▲	21 ●	1 ▲	■	■
Improve Upland Vegetation Management	■	■	19 ●	9, 17 ●	2 ▲	4-5 ●	■
Improve Groundwater Retention and Storage in Major Aquifers	■	■	19 ●	19 ●	1 ●	■	1391.8 ●
Restore Salmon Fishery in North Fork and Middle Fork Feather River Mainstems and Tributaries	5 A.3 ▲	5 A.5 ▲	■	■	■	■	■
Maintain Continuous Flow in Perennial Streams	5 A.2 ▲	5 A.1 ●	19 ▲	19 ●	1 ●	4-7 ●	■
Streambank Protection	5 A.2 ●	5 ●	19 ▲	16, 19 ●	2 ●	4-7 ●	■
Sediment Transport Reduction	5 A.4 ●	5 ●	19 ●	15, 21 ●	2 ●	4-7 ●	■
Stream Temperature Improvement	5 A.1 ●	8 ●	▲	▲	2 ▲	4-7 ▲	■
Agriculture NPS Waiver Program	■	■	■	■	■	■	■
Wetland Wastewater Treatment	■	■	■	21 ▲	2 ▲	■	■
Road Closure or Improvement	■	■	▲	15 ●	A.3, 8 ▲	4-10 ●	■
Grazing Management	■	■	▲	9 ●	2 ●	4-5 ●	■
Groundwater Recharge-Extraction Balance	■	■	19 ●	16 ●	■	■	1401.1 ●
Instream and Riparian/Wetland Habitat	5 A.3 ●	5 A.1 ●	19 ▲	16 ●	2 ●	4-7 ●	■
Education and Outreach	■	A.6 ●	■	21, 25 ●	2 ●	■	■
Monitoring and Adaptive Management	A.2,4,7 ●	A.1,5,7 ●	■	24 ●	4 ▲	■	■

Preexisting Management Plans and Obligations

Integrated Regional Water Management Plan



Key:

- = Does not address the subject.
- = Fully addresses the subject.
- ▲ = Partially addresses the subject.



Plumas National Forest



**Integrated Regional
Water Management Plan**



Watershed Integration Sustainable Resource Management



**Integrated Regional
Water Management Plan**



IRWM Strategies

- 1. Water Quantity Strategy**
- 2. Water Quality Strategy**
- 3. Flood Control Strategy**
- 4. Temperature/Sediment Strategy**
- 5. Groundwater Strategy**
- 6. Land Management Strategy**
- 7. Habitat Strategy**



Strategic Implementation

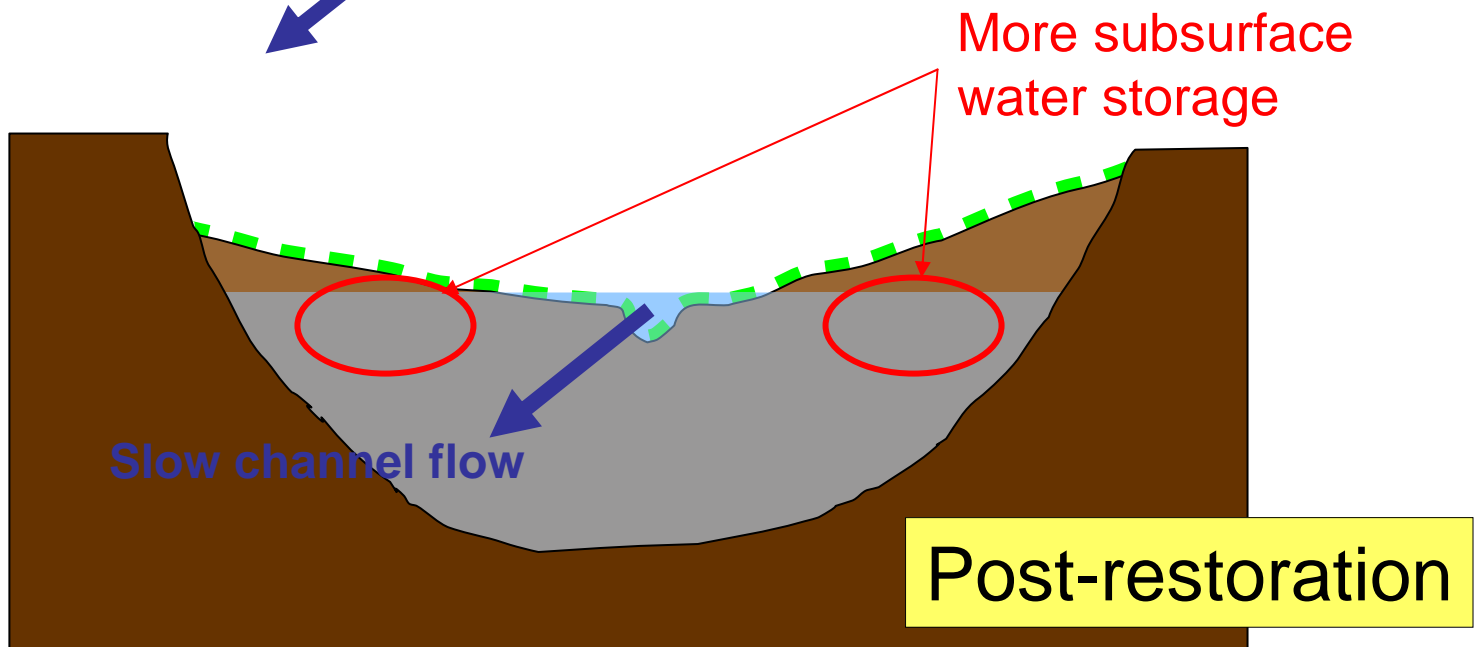
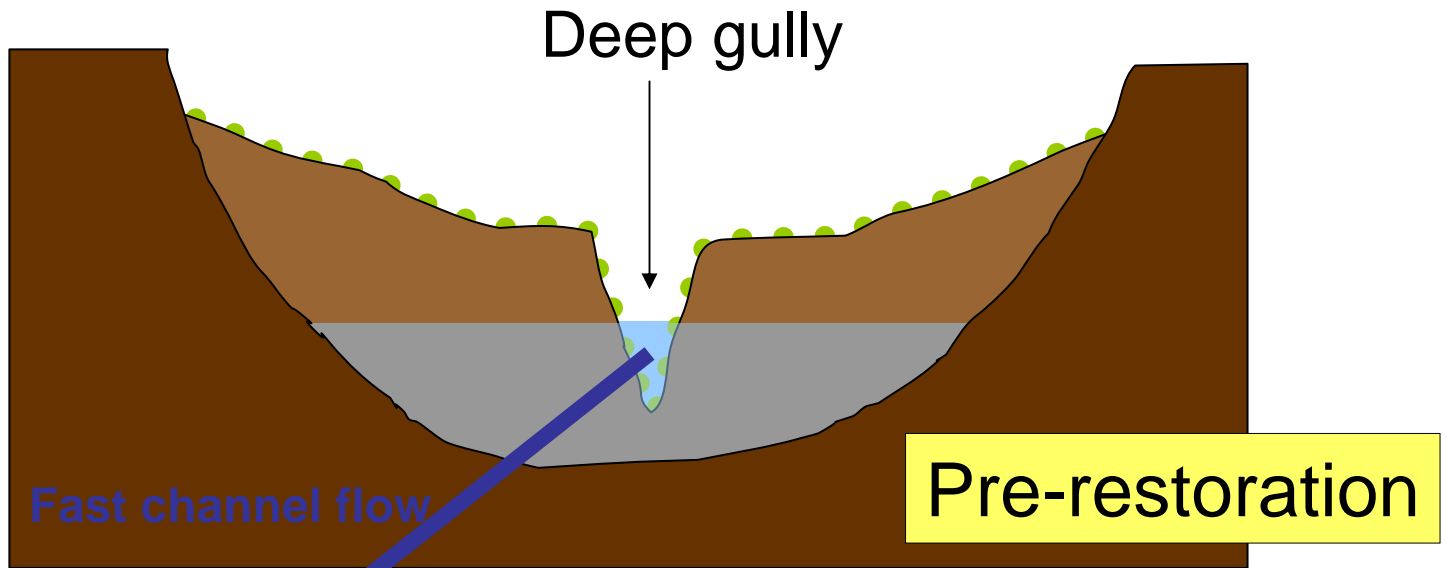
- 1. Water Quantity Strategy**
- 2. Water Quality Strategy**



- ❖ Flood Control Strategy**
- ❖ Temperature/Sediment Strategy**
- ❖ Groundwater Strategy**
- ❖ Land Management Strategy**
- ❖ Habitat Strategy**

Typical Pre-project Condition





May 2004



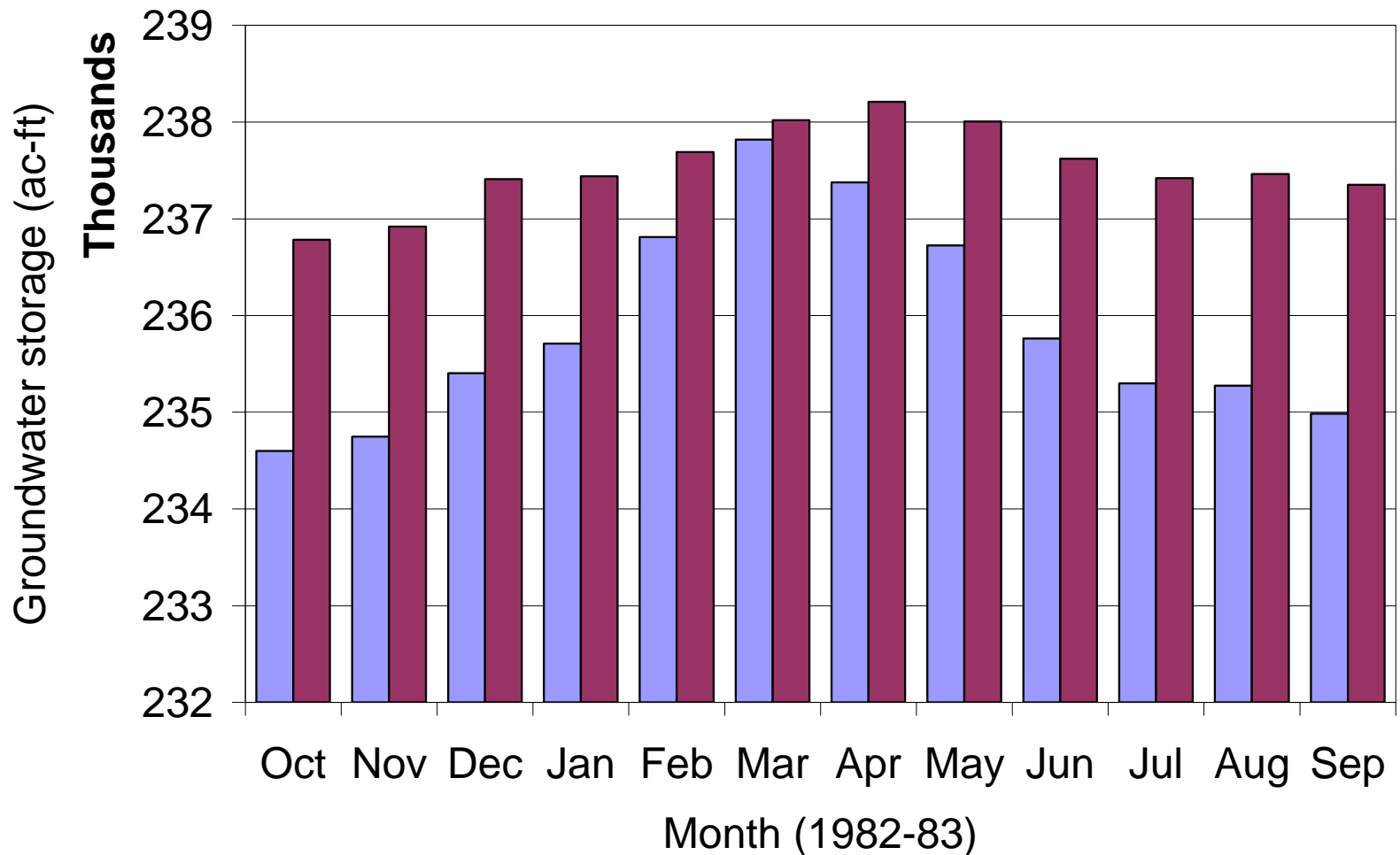
July 2001



Groundwater Storage

Pre-restoration vs. Post-restoration
(Oct.1982 - Sep.1983)

Pre-restoration Post-restoration



Flows at Doyle Crossing
(Based on Oct.1982-Sep.1983)

	Pre-restoration (acre-ft)	Post-restoration (acre-ft)	absolute diff (acre-ft)	relative diff (%)
Oct	132	132	0	0.00
Nov	505	499	-5	-1.06
Dec	3133	3109	-24	-0.77
Jan	4916	4388	-528	-10.74
Feb	14204	10631	-3574	-25.16
Mar	26302	17709	-8594	-32.67
Apr	18600	16762	-1838	-9.88
May	11744	11628	-116	-0.99
Jun	4898	5386	488	9.97
Jul	1545	2129	584	37.82
Aug	1680	2222	542	32.28
Sep	749	1393	643	85.84
Annual	88408	75988	-12420	-14.05

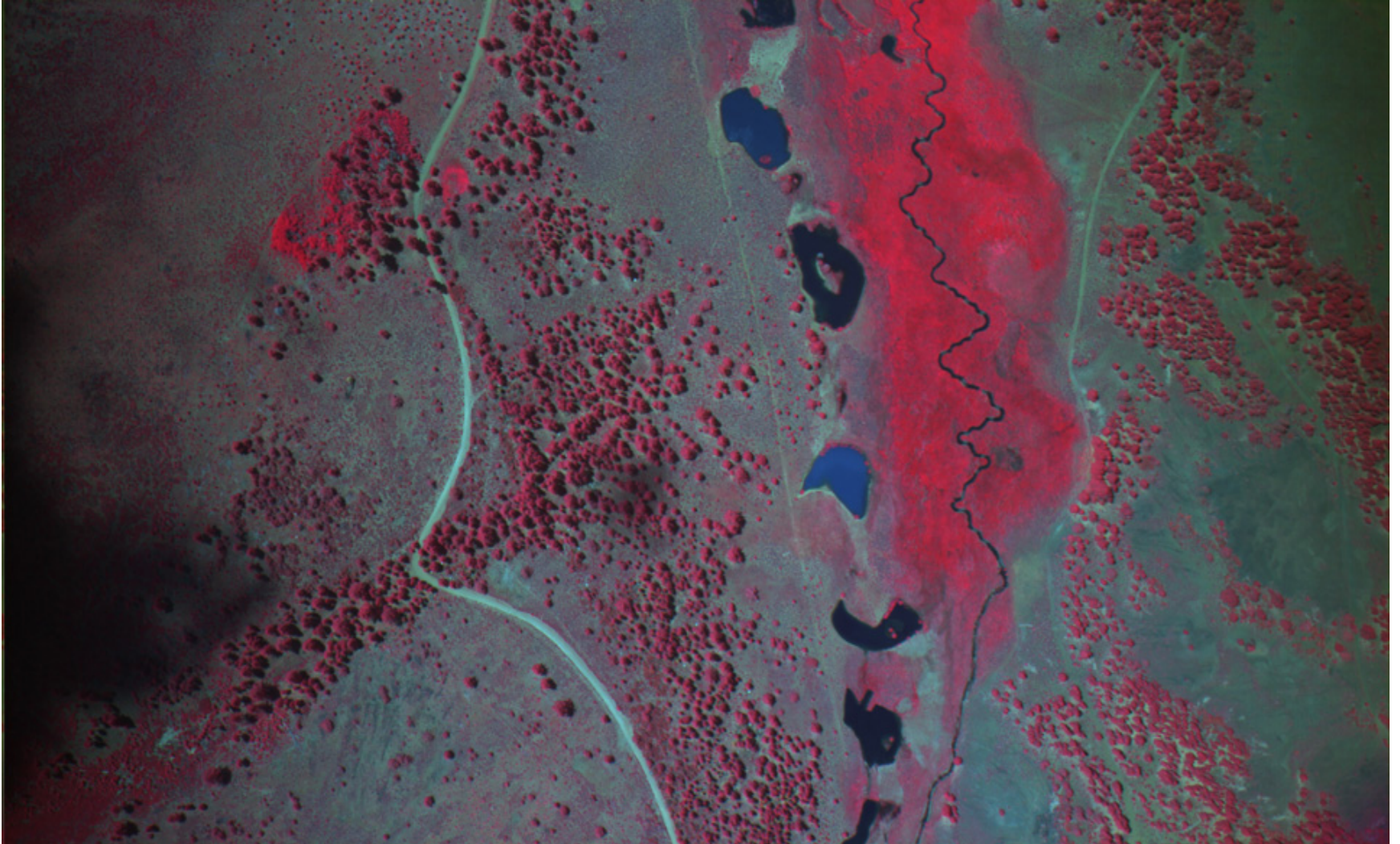
32.7% reduction of flow in March (wet month) may be expected, and
85.8% increase of flow in September (dry month) may be expected because of the restoration.

Hosselkus Creek Temperature Comparison

Temperature Data collected on June 27, 2005. Mostly cloudy, air temperature = 24.3C.

<u>Location</u>	<u>Time</u>	<u>Degrees Centigrade</u>	<u>Degrees Fahrenheit</u>
Hosselkus Creek abv project	1:55 p.m.	23.5	74.3
Hosselkus Creek blw project	12:50 p.m.	18	64.4
Indian Creek abv Hosselkus	1:15 p.m.	20	68.0
Indian Creek blw Hosselkus	12:30 p.m.	19	66.2

Post-Project Water Table



***Integrating
Watershed Management
and Water Infrastructure***



**Integrated Regional
Water Management Plan**





Conclusion and Questions

Integrated Regional
Water Management Plan

